

DOCKET: CU-5102

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Hideshi HATTORI et al.

TITLE: METHOD FOR PRODUCING CELL CULTURE SUBSTRATE AND
APPARATUS FOR PRODUCING CELL CULTURE SUBSTRATE

THE COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDED CLAIMS

1-6. (cancelled)

7. (new) A method for producing a cell culture substrate comprising:

a patterning substrate forming process of forming a patterning substrate by forming: on a base material, a light shielding portion, and a cell adhesive layer having adhesion to a cell and containing a cell adhesive material which is decomposed or denatured by an action of a photocatalyst upon energy irradiation so as to cover the light shielding portion ;

an energy irradiating process of irradiating energy to the patterning substrate from the base material side to form a pattern consisting of: a cell adhesion inhibiting portion in which the cell adhesive material is decomposed or denatured, and a cell adhesion portion which is other than the cell adhesion inhibiting portion; and

a cell adhesion process of making a cell adhere to the cell adhesion portion in a cell culture medium containing the cell and a culture medium.

8. (new) The method for producing a cell culture substrate according to Claim 7, wherein the cell adhesive layer is a photocatalyst-containing cell adhesive layer containing a photocatalyst and the cell adhesive material.

9. (new) The method for producing a cell culture substrate according to Claim 7, wherein the patterning substrate forming process is a process of forming the patterning substrate by forming a photocatalyst-containing layer containing at least a photocatalyst and the light shielding portion on the base material, and forming the cell adhesive layer on the photocatalyst-containing layer.
10. (new) The method for producing a cell culture substrate according Claim 7, wherein the cell adhesion inhibiting portion is irradiated with the energy during the cell adhesion process.
11. (new) The method for producing a cell culture substrate according to Claim 8, wherein the cell adhesion inhibiting portion is irradiated with the energy during the cell adhesion process.
12. (new) The method for producing a cell culture substrate according to Claim 9, wherein the cell adhesion inhibiting portion is irradiated with the energy during the cell adhesion process.
13. (new) The method for producing a cell culture substrate according to Claim 7, wherein a cell pattern retaining process of retaining the pattern of the cell adhered to the cell adhesion portion is carried out by irradiating the cell adhesion inhibiting portion with the energy from the base material side after the cell adhesion process.

14. (new) The method for producing a cell culture substrate according to Claim 8, wherein a cell pattern retaining process of retaining the pattern of the cell adhered to the cell adhesion portion is carried out by irradiating the cell adhesion inhibiting portion with the energy from the base material side after the cell adhesion process.

15. (new) The method for producing a cell culture substrate according to Claim 9, wherein a cell pattern retaining process of retaining the pattern of the cell adhered to the cell adhesion portion is carried out by irradiating the cell adhesion inhibiting portion with the energy from the base material side after the cell adhesion process.

16. (new) An apparatus for producing a cell culture substrate, wherein the apparatus comprising:

- a substrate support portion for supporting a substrate;

- a cell culture medium retaining portion which retains a cell culture medium containing a cell and a culture medium, and has a pH adjusting means for retaining a pH of the cell culture medium and a temperature control means for retaining temperature of the cell culture medium; and

- an energy irradiation portion for irradiating the substrate with energy.